

WHAT IS CLAIMED IS:

1. A polymer composition:

a first component being a hydroxy-functional polymer;

a second component being a natural polymer; and

5 a third component being a thermoplastic polyester, wherein
the first component, second component and third component are
combined to form the polymer composition.

2. A polymer composition as set forth in Claim 1 wherein
10 the natural polymer is starch.

3. A polymer composition as set forth in Claim 2 wherein
the starch is granular.

15 4. A polymer composition as set forth in Claim 1 wherein
the hydroxy-functional polymer is a poly(hydroxy ester
ether) (PHEE).

20 5. A polymer composition as set forth in Claim 1 wherein
the thermoplastic polyester is one from a group comprising
poly(lactic acid), cellulose acetate, polycaprolactone,
polyhydroxy(butyrate-co-valerate) (PHBV), poly(butylene succinate
adipate), poly(butylene succinate), aliphatic-aromatic copolymer,
and poly(ethylene terphthalate) (PET).

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6. A polymer composition as set forth in Claim 1 wherein
the second component is present in an amount up to about 74 wt.%.

7. A polymer composition as set forth in Claim 1 wherein the first component is present in an amount up to about 40 wt.%.

8. A polymer composition as set forth in Claim 1 wherein
5 the third component is present in an amount up to about 80 wt.%.

9. A polymer composition as set forth in Claim 1 including a fourth component from a group comprising an external lubricant, nucleating agent and plasticizer.

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10. A polymer composition as set forth in Claim 1 wherein the natural polymer has a moisture content of less than about 15 wt.%.

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11. A polymer composition as set forth in Claim 1 wherein the polymer composition is biodegradable.

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12. A polymer composition as set forth in Claim 1 wherein the polymer composition is processed into an article that keeps its shape at temperatures of up to and more than about 100°C.

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13. A polymer composition as set forth in Claim 1 wherein the polymer composition is annealed to increase high temperature stability.

14. An article comprising:
a first component being a hydroxy-functional polymer;
a second component being a natural polymer;

a third component being a thermoplastic polyester, wherein the first component, second component and third component are combined to form a polymer composition which is processed into the article.

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15. An article as set forth in Claim 14 wherein the natural polymer is starch.

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16. An article as set forth in Claim 15 wherein the starch is granular.

17. An article as set forth in Claim 14 wherein the hydroxy-functional polymer is a poly(hydroxy ester ether) (PHEE).

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18. An article as set forth in Claim 14 wherein the thermoplastic polyester is one from a group comprising poly(lactic acid), cellulose acetate, polycaprolactone, polyhydroxy(butyrate-co-valerate) (PHBV), poly(butylene succinate adipate), poly(butylene succinate), aliphatic-aromatic copolymer, and poly(ethylene terphthalate) (PET).

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19. An article as set forth in Claim 14 wherein the second component is present in an amount up to about 74 wt.%.

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20. An article as set forth in Claim 14 wherein the first component is present in an amount up to about 40 wt.%.

21. An article as set forth in Claim 14 wherein the third component is present in an amount up to about 80 wt.%.

22. An article as set forth in Claim 14 including a fourth component is one from a group comprising an external lubricant, nucleating agent and plasticizer.

23. An article as set forth in Claim 14 wherein the article keeps its shape at temperatures of up to and more than about 100 °C.

24. An article as set forth in Claim 14 wherein the article is biodegradable.

25. An article as set forth in Claim 14 wherein the natural polymer has a moisture content of less than about 12 wt.%.

26. A method of making a polymer composition, said method comprising the steps of:

providing a first component being a hydroxy-functional polymer;

providing a second component being a natural polymer;

providing a third component being a thermoplastic polyester;

and

combining the components to form a polymer composition.

27. A method as set forth in Claim 26 including the step of mixing the first component, second component, and third component together to form a mixture prior to said step of combining.

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28. A method as set forth in Claim 26 including the step of forming strands of the polymer composition.

29. A method as set forth in Claim 26 including the step of extruding the polymer composition.

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30. A method as set forth in Claim 26 including the step of pelletizing the polymer composition to form pellets.

31. A method as set forth in Claim 26 wherein said step of providing comprises providing the third component in an amount up to about 80 wt. %.

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32. A method as set forth in Claim 26 including the step of providing the first component in an amount up to about 40 wt. %.

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33. A method as set forth in Claim 26 including the step of providing the second component in an amount up to about 74 wt. %.

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34. A method as set forth in Claim 26 wherein the natural polymer of the second component is starch.

35. A method as set forth in Claim 26 wherein the hydroxy-functional polymer is a poly(hydroxy ester ether) (PHEE).

5 36. A method as set forth in Claim 26 wherein the thermoplastic polyester is one from a group comprising poly(lactic acid), cellulose acetate, polycaprolactone, polyhydroxy(butyrate-co-valerate) (PHBV), poly(butylene succinate adipate), poly(butylene succinate), aliphatic-aromatic copolymer, and poly(ethylene terphthalate) (PET).

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37. A method as set forth in Claim 26 including the step of providing a fourth component being one from a group comprising an external lubricant, nucleating agent and plasticizer.

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38. A method as set forth in Claim 27 wherein said step of combining comprises compounding the mixture from about 120°C to about 190°C.

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39. A method as set forth in Claim 27 wherein said step of combining comprises compounding the mixture in an extruder.

40. A method as set forth in Claim 26 wherein the polymer composition is biodegradable.

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41. A polymer composition:

a first component being a hydroxy-functional polymer;

a second component being a natural polymer; and

a third component being a thermoplastic polyester, wherein the first component, second component and third component are combined to form the polymer composition and wherein the hydroxy-functional polymer is a poly(hydroxy ester ether) (PHEE) in an amount of about 1 wt.%.
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